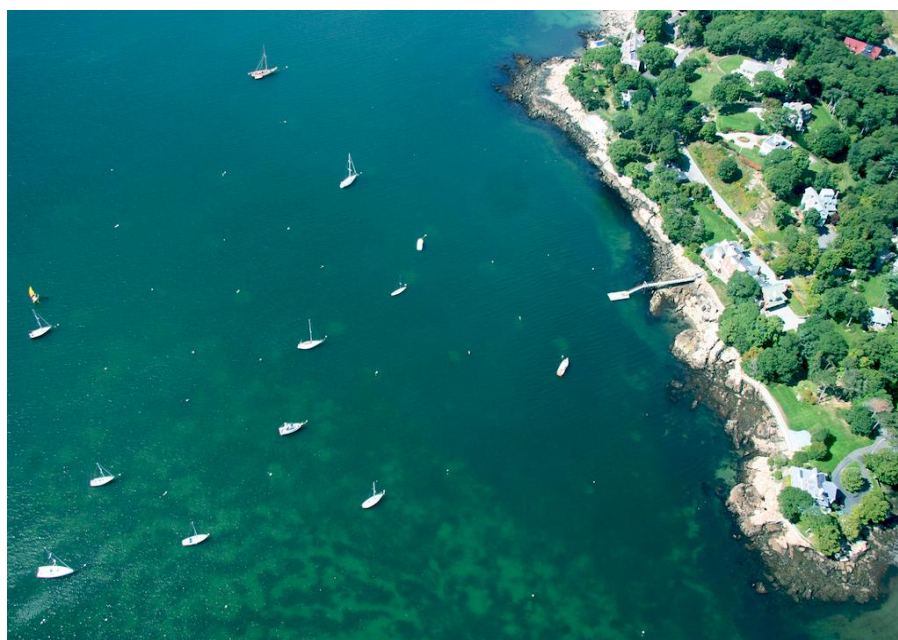




MASSACHUSETTS BAYS PROGRAM

FY12 Annual Work Plan

July 1, 2011 to June 30, 2012



Final

June 29, 2011

Commonly Used Acronyms

8T&B	Eight Towns & the Bay Committee
APCC	Association to Preserve Cape Cod
CCMP	Comprehensive Conservation and Management Plan
CRC	Coastal Resources Committee (Barnstable County)
CRE	Climate Ready Estuaries
CZM	Office of Coastal Zone Management
DCR	Department of Conservation and Recreation
DEP	Department of Environmental Protection
DER	Department of Ecological Restoration
DMF	Division of Marine Fisheries
DNR	Department of Natural Resource
EEA	Executive Office of Energy & Environmental Affairs
EPA	Environmental Protection Agency
GOM	Gulf of Maine
GOMC	Gulf of Maine Council
LID	Low Impact Development
MAS	Massachusetts Audubon Society
MBP	Massachusetts Bays Program
MET	Massachusetts Environmental Trust
MIT	Massachusetts Institute of Technology
MVPC	Merrimack Valley Planning Commission
MAPC	Metropolitan Area Planning Commission
MWRA	Massachusetts Water Resources Agency
NDA	No Discharge Area
NEANS	Northeast Aquatic Nuisance Species
NEP	National Estuary Program
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	Non-point source pollution
NSRWA	North and South Rivers Watershed Association
QAPP	Quality Assurance Project Plan
RPA	Regional Planning Agency
RSP	Regional Service Provider
SSCW	Salem Sound Coastwatch
TNC	The Nature Conservancy
UNH	University of New Hampshire
USFWS	United States Fish & Wildlife Service

Cover photo: Manchester Outer Harbor, site of installation of conservation moorings, courtesy LightHawk

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I. Introduction

The Massachusetts Bays Program (MBP), its staff, and Management Committee, are pleased to submit this application for funding for implementation of our State FY12 Work Plan (July 1, 2011-June 30, 2012). This Work Plan builds on a successful year of implementation in FY11, which included the inaugural year of the Massachusetts Bays Research and Planning Grants, publication of our 2010 State of the Bays Report, and a number of large scale estuarine habitat restoration initiatives, to name just a few achievements. The funding support and partnership with EPA has been critical to the success of these efforts, and we greatly look forward to continued collaboration with EPA and all of our partners.

The feature component of our FY12 Work Plan is our effort to initiate the update of our CCMP. This management plan was last updated in 2003, and the Management Committee has agreed that emerging topics such as climate change and sea level rise, as well as changes in the political landscape at all levels of government make this a good time for this effort. We hope to have a completed document in 2013. In addition, MBP will continue to work with communities throughout our planning area to achieve meaningful results in the protection and restoration of estuarine systems.

It is my pleasure to submit this Work Plan for your review, and we appreciate any thoughts or comments you might have. We thank you for your support and look forward to a continued, productive partnership.

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II. Objectives for the Coming Year

MBP will continue to use the three-year Strategic Plan developed and approved in 2009 to guide forthcoming CCMP implementation efforts. The Strategic Plan highlights goals, outcomes, and actions associated with each of the eight objectives listed below.

Objective A1: Protect and enhance coastal habitat
Objective A2: Reduce and prevent stormwater pollution
Objective A3: Protect and enhance shellfish resources
Objective A4: Manage local land use and growth
Objective A5: Manage municipal wastewater
Objective A6: Manage marine invasive species
Objective A7: Monitor marine waters
Objective A8: Adapt for projected impacts of climate change

During FY12, MBP will initiate the process of updating its CCMP. The preliminary plan for this process is to articulate five goals for each of our five regions, which can be implemented over the next five years. These goals will be vetted by our local constituents through a series of regional workshops, which will seek feedback on proposed objectives, and bring to light local priorities that might have otherwise been missed by the MBP Management Committee Members, staff, and Regional Coordinators.

III. Highlights of Successes from the Past Year

MBP and its partners have had continued success in improving the health and condition of the MBP planning area. More specifically, the program has had great success over the past year in engaging local communities through its inaugural Research and Planning Grant Round and other local initiatives, elevating the profile of the organization, and positioning itself for an update of its CCMP with the support of local communities. Some examples of our successes and program highlights include:

Release of State of the Bays Report

MBP released the 2010 *State of the Bays*, a report that summarizes the status of 17 indicators of the health of Massachusetts and Cape Cod Bays under the categories of Water Quality, Living Resources, and Human Uses. The *State of the Bays* report includes discussion on changes in the water chemistry of Boston Harbor due to improved wastewater management, causes of harmful algal blooms, trends in eelgrass beds throughout Massachusetts Bay, and acreage of land under permanent protection. The report serves as an update of the first *State of the Bays* publication, released in 2004, and represents the contributions of more than 25 experts in the field of coastal environmental management.

Research and Planning Grants

The first annual Massachusetts Bays Program (MBP) Research and Planning Grants initiative funded eight projects totaling \$200,000 located along the coast of Massachusetts Bay and Cape Cod. The selected projects address the Priority Actions of MBP's Comprehensive Conservation and Management Plan while targeting a wide range of issues that identify the causes of coastal habitat degradation, develop plans to address coastal water quality pollution issues, and/or build local capacity to protect coastal resources. MBP provided funding to:

- The Town of Kingston to identify and address sources of polluted stormwater runoff to Kingston Bay
- The Jones River Watershed Association to develop a restoration plan for the Stony Brook/Tussock Brook Salt Marsh complex
- The Town of Ipswich to develop a Resource Management Plan for the Great Marsh Area of Critical Environmental Concern
- The Massachusetts Audubon Society for its ongoing work to restore oyster reef habitat in the Town of Wellfleet
- The Town of Salisbury to develop improved local stormwater policies
- A partnership between The Nature Conservancy and the Massachusetts Division of Marine Fisheries to develop guidelines for shellfish bed restoration initiatives
- The Cape Cod Commercial Hook Fishermen Association to create a River Herring Warden Network for Cape Cod and Southeastern Massachusetts
- The University of New Hampshire for research into the cause of the accelerated invasion of the Great Marsh on Massachusetts's North Shore by the Common Reed (*Phragmites australis*)

No Discharge Area

In the summer of 2010, the remaining piece of MBP's No Discharge Area (NDA) initiative was completed when the Upper North Shore (from Gloucester to Amesbury, and the tidal portion of the Merrimac River) was designated as an NDA. The Upper North Shore follows six other NDA designations in Massachusetts and Cape Cod Bays providing continuous NDA coverage from the New Hampshire boarder to the tip of Provincetown. The seamless NDA designation was a result of close coordination and collaboration between MBP, the Massachusetts Office of Coastal Zone Management, the U.S. Environmental Protection Agency (EPA), and coastal communities.

State of Salem Sound Symposium

MBP's Regional Coordinator, Salem Sound Coastwatch (SSCW), with funding support of MBP, held a two-day symposium in March called "What is the State of Salem Sound? Past, Present, and Future." The event reviewed the strides SSCW, MBP, and our partners have made since 1991 to improve the water quality of Salem Sound. The Symposium attracted 100 attendees on each day and left stewards with a snapshot of the current state of Salem Sound as well as prioritizing stewardship activities for the future. Stewardship priorities outlined at the Symposium included addressing poor water quality by treating stormwater runoff, encouraging the return of wildlife, supporting the redevelopment of brownfield sites, and planning for the impacts of climate change.

Phragmites Legislative Action Committee

In March, state legislators, in partnership with the Eight Towns and the Bay Committee, the Upper North Shore's arm of MBP, brought together dozens of concerned individuals to begin developing a plan for the eradication of *Phragmites australis* (common reed) from the Great Marsh. At 25,000 acres, the Great Marsh is the largest salt marsh in New England, providing critical habitat for marine life in the area. Senators Bruce Tarr (R-Gloucester) and Steven Baddour (D-Methuen) led the meeting and launched the Great Marsh Revitalization Legislative Task Force. Representatives Michael Costello (D-Newburyport) and Harriett Stanley (D-West Newbury) will also lead the task force in achieving the dual goal of establishing a comprehensive approach to stop the spread of *Phragmites*, and developing short- and long-term plans to restore areas already suffering from infestation. As a first step, the Task Force will conduct a mapping and assessment project in Salisbury. The project will also estimate the costs of control in the most heavily invaded areas.

Mass Bays and Urban Harbors win Metro Boston Habitat Planning Grant

MBP and the Urban Harbors Institute successfully applied for \$50,000 in funding from the Massachusetts Environmental Trust (MET) for habitat protection and restoration planning in the Metro Boston region. The grant will be used to formalize a Boston Harbor Habitat Coalition by engaging key stakeholders with interest in habitat protection; compile and make accessible an online digital atlas with the most up-to-date data on habitat type, condition, and status as well as other critical features such as adjacent land use, contributing watersheds, and political boundaries; develop a widely agreed upon framework for identifying habitat protection and restoration priorities; and establish a flexible platform for presenting the data and prioritization process that allows for adaptive management and the incorporation of new data in the future.

Cape Cod Water Resources Restoration Project

The Barnstable County Coastal Resources Committee (CRC), MBP's regional planning body for Cape Cod, recommended a set of 27 restoration projects to be funded by the Cape Cod Water Resources Restoration Project. A total of \$6.5 million was allocated for 17 stormwater remediation projects, six salt marsh restoration projects, and four fish run restoration projects. Examples of projects located in the MBP planning area include: (1) stormwater remediation at Good Templar Place in Provincetown, Commercial Street and Holbrook Road in Wellfleet, Paines Creek in Brewster, and Scudder Lane in Barnstable (2) salt marsh restoration projects in Sunken Meadow in Eastham, and Freeman's Pond in Brewster; and (3) a fish passage repair project on Monument River in Bourne. State partners include the Massachusetts Division of Marine Fisheries and the Division of Ecological Restoration, which have provided technical advice and recommendations. This landmark restoration program, proposed by the Natural Resources Conservation Service (NRCS), received Senate approval in late December 2009 and the first round of funding was made available in January 2010.

Stony Brook Restoration Complete

Salt marsh restoration at Stony Brook in Brewster was completed this fall/winter. The construction work involved replacement of an undersized 4 foot tidal culvert beneath a state highway (Rte 6A) with an 18

foot box culvert and creation of openings in an existing diked trail to allow better tidal flow across the restricted marsh. The Stony Brook salt marsh and fish passage restoration project is one of several complementary restoration projects that the Town of Brewster is undertaking in this watershed. Other projects include remediation of stormwater discharges into Stony Brook at locations in the lower, middle, and upper watershed; restoration of a restricted salt marsh near the mouth of Stony Brook; repair of the fish passage at the Lower Mill Pond dam; and 24 acres of open space protection. The Stony Brook restoration project was funded by a National Oceanic and Atmospheric Administration – American Recovery and Reinvestment Act (NOAA-ARRA) grant to the Town of Brewster and guided by a Project Team including NOAA Habitat Restoration Center; the Division of Ecological Restoration; Brewster Natural Resources Director; and the MBP Regional Coordinator for Cape Cod.

Scituate/Marshfield Clam Flats Reopened

After 20 years of closure due to bacterial contamination, 313 acres of clam flats at the mouth of the South River reopened this spring as a result of a cleanup effort by the North and South Rivers Watershed Association (NSRWA), the MBP's South Shore regional planning body; the Towns of Scituate and Marshfield; and the Massachusetts Division of Marine Fisheries. The cleanup strategy identified potential pollutant sources and then implemented targeted cleanup strategies, which included increasing the treatment of stormwater runoff, upgrading existing septic systems, and extending Marshfield's sewer system.

IV. Budget

A. Proposed Expenditures (FY12 Grant)

Budget Detail

Personnel	
Total Personnel (Director, Scientist, Special Projects Coordinator)	\$147,663
Fringe	
Fringe @ 35.16% (33.25% Regular Fringe + Payroll Tax @ 1.91%)	\$51,918
Travel	
Total Travel	\$5,000
Contractual - Subcontracts	
Regional Coordinators (\$59,750 x 4)	\$239,000
Total Contractual - Subcontracts	\$239,000
Contractual - Sub-grants	
FY12 Research and Planning Grants	\$48,000
Total Contractual - Sub-grants	\$48,000
Indirect	
Indirect Charges @ 25.93% (personnel and contractual)	\$100,262
Total Other Charges	\$100,262
Other Expenses	
Other (printing, IT, admin, supplies, etc.)	\$6,957
Total Other Expenses	\$6,957
Total	\$598,800

Budget Narrative

Personnel: Personnel and Fringe: MBP will provide the salary of one full time (Executive Director) and two part time (Staff Scientists and Special Projects Coordinator). Fringe and payroll taxes bring the total budget for personnel to \$199,581.

Travel: The travel budget of \$5,000 will support, at a minimum, travel of the Director to the Annual NEP Director's meeting as well as the Association of National Estuary Program's fall meeting. Other travel to conferences, workshops, and meeting will be considered on a case by case basis.

Contractual-subcontracts: MBP will continue to support four Regional Service Providers in our Upper North Shore, Salem Sound, South Shore, and Cape Cod Regions. Funding for these positions will be held at FY10-FY11 levels of \$59,750/region.

Contractual-subgrants: MBP has budgeted \$48,000 for the FY12 Research and Planning Grant Program. An additional \$52,000 will be devoted to the FY12 grant round from FY11 carryover funds

(see below) for a total grant round of \$100,000. We anticipate selecting 8-10 projects ranging from \$15,000-\$25,000 per project.

Indirect: The state indirect rate of 25.93% will be assessed against all personnel and contractual budget items. Sub-grants are exempt from indirect charges.

Other Expenses: MBP has budgeted the remaining funds (\$6,957) for printing, supplies and the maintenance of server space for the MBP Web Page.

B. Proposed Expenditures (Carryover)

Contractual - Subcontracts	
Conservation Moorings	\$5,630.00
Digital Coastal Habitat Atlas	\$13,881.17
CCMP Update	\$50,000.00
Total Contractual - Subcontracts	\$69,511.17
Contractual - Sub-grants	
FY11 Research and Planning Grants	\$179,495.00
FY12 Research and Planning Grants	\$52,000.00
Total Contractual - Sub-grants	\$231,495.00
Indirect	
Indirect Charges @ 25.93% (personnel and contractual)	\$18,024.25
Total	\$319,030.42

Budget Narrative

Contractual-Subcontracts: \$5,630 of carryover funds will be used to develop outreach materials related to the virtues of conservation moorings and protection of eelgrass habitat. \$13,881.17 remains in an existing Interagency Service Agreement with the Urban Harbors Institute for the development of a Boston Harbor Digital Coastal Habitat Atlas. An additional \$50,000 of carryover funds will be devoted to the update of the CCMP. CCMP funds will be used to secure the services of a contractor to document baseline water quality and habitat conditions in each of our regions (using existing data) and, as the funding allows, facilitate discussion sessions at regional meetings.

Contractual -Subgrants: All 8 of the projects funded under the FY11 Research and Planning Grant round will be extending into FY12. \$52,000 of additional carryover funds (primarily savings from staff vacancies) will be devoted to the FY12 Grant Round.

Indirect: The state indirect rate of 25.93% will be assessed against all personnel and contractual budget items. Sub-grants are exempt from indirect charges.

C. Match

Source	Description	Cash or In-Kind	Match Amount
Upper North Shore Region			
MVPC	Additional salary for Regional Service Provider (includes fringe and indirect)	Cash	\$68,792.00
MVPC	In-kind staff contribution to CCMP Implementation	In-kind	\$42,500.00
DCR	Salisbury Phragmites mapping and control supported by a grant from the Massachusetts Department of Conservation and Recreation	Cash	\$25,000.00
Mass Audubon	Pepperweed Monitoring and Control. Massachusetts Audubon Society contributing in-kind services	In-Kind	\$10,000.00
8T&B	8 Towns and the Bay Committee Members in-kind contributions (monthly meetings and projects)	In-kind	\$12,000.00
UNS Communities	Greenscapes community contributions (membership dues from participating communities)	Cash	\$7,500.00
Salem Sound Region			
SSCW	Additional salary for Regional Service Provider (includes fringe and indirect)	Cash	\$23,626.00
SSCW	In-kind contribution of SSCW staff for monitoring	In-kind	\$2,500.00
DER	Salt Marsh Monitoring supported by a grant from the Division of Ecological Restoration to Salem Sound Coastwatch	Cash	\$12,235.00
DEP	Grant to Salem Sound Coastwatch from the Department of Environmental Protection to support development of the CAPS model	Cash	\$10,000.00
SSCW	Clean Beaches and Streams supported by cash contribution of Salem Sound Coastwatch	Cash	\$8,000.00
SS Communities	Greenscapes community contributions (membership dues from participating communities)	Cash	\$20,000.00
SSCW	Investigation of the causes of shellfish closure in Salem Sound supported by \$4,000 contribution of Salem Sound Coastwatch	Cash	\$4,000.00
Volunteers	Pepperweed removal supported by In-kind contribution of volunteer teams	In-kind	\$2,000.00
South Shore Region			
NSRWA	Additional salary for Regional Service Provider (includes fringe and indirect)	Cash	\$23,350.00
NSRWA	Wetland monitoring supported by volunteer contributions and equipment provided by the North and South Rivers Watershed Association	In-Kind	\$18,360.00
NSRWA	First Herring Brook restoration supported by in-kind contributions of local officials, NSRWA staff, and volunteers.	In-Kind	\$11,550.00
NSRWA	Anadromous fish monitoring supported by in-kind contributions of local officials, NSRWA staff, and volunteers.	In-Kind	\$12,200.00

NSRWA	Stream restoration planning supported by In-kind contributions of local officials, NSRWA staff, and volunteers.	In-Kind	\$2,625.00
NSRWA	Third Herring Brook restoration supported by in-kind contributions of local officials, NSRWA staff, and volunteers	In-Kind	\$2,450.00
NSRWA	Inner Little Harbor tide gate management supported by In-kind contributions of local officials and volunteers)	In-Kind	\$2,450.00
NSRWA	Pepperweed education and removal efforts supported by In-kind contributions of local officials, NSRWA staff, and volunteers	In-Kind	\$1,625.00
NSRWA	Duxbury Bay Management Plan supported by in-kind contributions of local officials, NSRWA staff, and volunteers	In-Kind	\$3,340.00
NSRWA	Bacterial Source Tracking supported by in-kind contributions of local officials, NSRWA staff, state officials, and volunteers.	In-Kind	\$4,945.00
NSRWA	Municipal stormwater outreach In supported by in-kind contributions of local officials, NSRWA staff, state officials, and volunteers.	In-Kind	\$29,250.00
NSRWA	Marine invasive species monitoring supported by In-kind contributions of local officials, state officials, and volunteers	In-Kind	\$2,100.00
NSRWA	CCMP update outreach and workshop activities supported by in-kind contributions of NSRWA staff and town officials)	In-Kind	\$4,250.00
NSRWA	Cash and in--kind support provided by NSRWA for water quality and habitat protection efforts	Cash and In-Kind	\$50,000.00
Cape Cod Region			
APCC	Additional salary for Regional Service Provider (includes fringe and indirect)	Cash	\$18,533.00
Brewster	Stony Brook Salt Marsh and Fish Passage Restoration Project. Monitoring contract with the town of Brewster	Cash	\$25,600
Private Foundation	Cape Cod Critical Habitats Atlas. Supported by private foundation grant	Cash	\$20,000
MET	Set up regional aquatic invasive monitoring program for Cape Cod (pending grant award from Massachusetts Environmental Trust)	Cash	\$30,000
APCC	Data loggers for monitoring fish runs for climate change contributed by the Association to Preserve Cape Cod	In-kind	\$2,500
DER	Pre- and post-restoration monitoring of salt marshes supported by a grant from the Division of Ecological Restoration	Cash	\$30,000
Private Foundation	Mapping of areas of Stony Brook valley where salt marsh retreat could occur supported by a private foundation grant	Cash	\$20,000
Private Foundation	Support for zoning reform to protect water and natural resources supported by a private foundation grant	Cash	\$10,000
Metro Boston Region			
UHI	Urban Harbors Institute in-kind contributions for the development of the Boston Harbor Digital Habitat Atlas	In-Kind	\$12,309.00
Bays Wide			

Grant Recipients	FY12 Research and Planning Grants cash and in-kind match (anticipated)	Cash and In-Kind	\$50,000.00
			\$635,590.00

Budget Narrative

MBP has worked closely with its regional partners to identify sources of match for the program. These funding sources are linked directly to the implementation of the CCMP as well as the 2009-2012 Strategic Plan. Each of our RSPs has identified a substantial cash and in-kind match as detailed above. Funding sources from RSPs include revenue from membership, state and local grants, local donors etc., as well as the work of staff within these organizations on projects specifically related to our estuarine restoration and conservation efforts.

MBP anticipates that the Municipal Grant Program will result in a 50% match of the total funds dedicated to this effort (\$100,000). A cash and/or in-kind match will be a requirement of the grant program and additional consideration will be granted to those projects that provide additional match.

V. Staff and Key Partner Responsibilities

Executive Director

The MBP Executive Director (the Director), Jay Baker, is responsible for the overall management of the program, including administration of grants and contracts, staff supervision, and general program operations. The Director works with the MBP Management Committee and program staff to set priorities for the program and facilitates development of the three year Strategic Plan as well as an annual Work Plan and grant application to EPA. The Director coordinates with EPA and the host agency, CZM, on administrative and programmatic issues, and provides oversight to RSPs. The Director also develops and leads MBP technical and policy initiatives as needed, and will work with staff, the Management Committee, and partners to seek additional resources for MBP.

Staff Scientist

The MBP Staff Scientist, Prassede Vella, works half time with MBP and half time with our host agency, the Office of Coastal Zone Management, as a Coastal Management Specialist. The staff scientist is primarily responsible for the development of ecosystem indicators, which will serve as the foundation for our CCMP update. Development of subsequent State of the Bays Reports will be led by the Staff Scientist. The Staff Scientist is also primarily responsible for coordination of the MBP Research and Planning Grant Program.

Special Projects Coordinator

The Special Projects Coordinator position is a new one for MBP (replacing the outreach coordinator position), and was filled by Lisa Engler late in FY11. The Special Projects Coordinator will have primary responsibility for MBP communications, such as weekly reports, newsletters, and web management. The Special Project Coordinator will also be the lead on initiatives in the Metro Boston Region, and will work closely with Regional Service Providers on community specific initiatives.

Regional Service Providers

MBP's four Regional Service Providers serve as our primary means of communication with the communities of the MBP planning area. RSPs are responsible for identifying regional priorities that are consistent with the CCMP and Strategic Plan, and for developing strategies for implementing the annual Work Plan at the local level. RSPs are hosted by regional planning agencies or nonprofit organizations that currently include:

- The Merrimack Valley Planning Commission: Upper North Shore Region
- Salem Sound Coastwatch: Salem Sound Region
- The North and South Rivers Watershed Association: South Shore Region
- The Association to Preserve Cape Cod: Cape Cod Region.

RSPs are responsible for coordinating the activities of MBP with these organizations. MBP will renew the four existing RSP contracts in FY12.

VI. Proposed New and Ongoing Projects

For FY12, MBP staff, RSPs, and Management Committee members have developed an ambitious programmatic work plan that includes a second year of Research and Planning Grants, a number of outreach initiatives, and the launching of an effort to update MBP's CCMP. Programmatic priorities for Y12 are described in more detail below.

Programmatic Priorities

- **P1: Update CCMP (new):** In FY 12, MBP will embark on an effort to update its CCMP, which was last revised in 2003. FY12 activities will focus on developing ecosystem indicators at the regional or embayment scale, characterizing local estuarine systems, and presenting findings and draft management priorities to local constituents. MBP will secure the services of a contractor to begin gathering information on select ecosystem indicators specific to each region and embayment. MBP anticipates completing its revisions to the CCMP during FY13.
 - Responsible Parties: Central Staff, Regional Service Providers (RSPs)
 - Partners: Management Committee Members
 - Budget: \$50,000 MBP Cash
 - Outputs/Deliverables: Assessment of embayment conditions based on key indicators, Draft Management Goals; a series of "State of the Region" symposiums designed to present and receive feedback on key management goals for the CCMP
 - Intermediate Outcomes: Improved understanding of local conditions and management needs
 - Long-Term Outcomes: Improved habitat and water quality condition within Massachusetts Bay
 - Region: Bays-wide
 - Time-Line: Throughout FY2012; Regional Workshops, Spring 2012.; Draft CCMP presented by end of FY2012
 - CCMP Action Item: NA
 - CWA Core Program Area: NA
- **P2. FY11 Massachusetts Bays Program Research and Planning Grants (ongoing):** FY11 was the inaugural year for the MBP Research and Planning Grant Program. As outlined above, the program was successful in expanding the reach and visibility of the program. MBP received 20 applications for over \$500,000 in response to the grant offering. The eight projects funded in FY11 will be completed during the first half of FY12 (by the end of the calendar year).
 - Responsible Parties: Mass Bays Director and Staff Scientist will administer the grant program. RSPs will manage projects located in their respective regions
 - Partners: Award Recipients
 - Budget: \$179,495 carryover for unfinished FY11 grant funded projects

- Outputs/Deliverables: Products are detailed in individual project Scopes of Work
 - Intermediate Outcomes: Road map for future initiatives in MBP priority program areas; increased partnerships among MBP communities and non-profits
 - Long Term Outcomes: Improved habitat and water quality conditions within Massachusetts Bay
 - Region: Bays-wide
 - Time Line: RFP issued in Fall of 2010, Projects will be completed in calendar year 2011
 - CCMP Action item: This activity will cover many areas of CCMP including Action items 3-Protection and enhancing coastal habitat and 4-Reducing and preventing stormwater pollution.
 - CWA Core Program Area: 2-5. Wetland Program
- **P3. FY12 Massachusetts Bays Program Research and Planning Grants (ongoing).**
Building on the success of its 2011 Research and Planning Grant Program, MBP will run this program once again in FY 2012. Priority projects will include those that build upon or are redeveloped from FY2011 applications and projects, as well as those that support ongoing MBP initiatives (such as the Metro Boston Habitat Atlas). Individual grants will likely range from \$10K-\$20K.
 - Responsible Parties: Mass Bays Director and Staff Scientist will administer the grant program. Regional Service Providers will manage projects located in their respective regions
 - Partners: Grant recipients
 - Budget: \$100,000 MBP cash for FY12; \$50,000 anticipated FY12 grant round match.
 - Outputs/Deliverables: To be determined based on RFP Process
 - Intermediate Outcomes: Road map for future initiatives in MBP priority program areas; increased partnerships among MBP communities and non-profits
 - Long-Term Outcomes: improved habitat and water quality condition within Massachusetts Bay
 - Region: Bays-wide
 - Time Line: RFP administered in summer 2011, Projects completed in calendar year 2012
 - CCMP Action item: This activity will cover many areas of the CCMP including Action items 3-Protection and enhancing coastal habitat and 4-Reducing and preventing stormwater pollution.
 - CWA Core Program Area: 2-5. Wetland Program
- **P4: Communications (ongoing):** Late in FY11, MBP was able to hire a Special Projects Coordinator who will have primary responsibility for MBP Communications. The Special Projects Coordinator will continue to produce quarterly MBP newsletters, post relevant resources to the MBP web site, and seek other opportunities to promote and build support for MBP initiatives.
 - Responsible Parties: Mass Bays Director and Special Projects Coordinator
 - Budget: \$0 MBP cash
 - Partners: NA
 - Outputs/Deliverables: Quarterly newsletters, updated web page, CCMP tracking tool, miscellaneous outreach products
 - Intermediate Outcomes: Improved visibility and support for MBP Initiatives
 - Long-Term Outcomes: Improved stewardship of the MBP Planning Area
 - Region: Bays-wide
 - Time Line: Newsletter Quarterly. Remaining items TBD.
 - CCMP Action item: NA
 - CWA Core Program Area: NA

- **P5: Develop QAPP(s) for MBP monitoring initiatives:** MBP staff and RSPs will review monitoring initiatives undertaken and develop Quality Assurance Project Plans, where necessary. Based on the results of the assessment, MBP will determine whether a programmatic QAPP would be most appropriate to ensure the collection of quality data.
 - Responsible Parties: Mass Bays Director, staff, and RSPs
 - Budget: \$0 MBP Cash
 - Partners: NA
 - Outputs/Deliverables: Individual project QAPPs or Programmatic QAPP
 - Intermediate Outcomes: NA
 - Long-Term Outcomes: NA
 - Region: Bays-wide
 - Time Line: Review of current monitoring activities, Fall 2011; Completed QAPPs by end of fiscal year
 - CCMP Action item: NA
 - CWA Core Program Area: NA

MBP Strategic Plan Objectives

Objective A1: *Protect and enhance coastal habitat*

The following projects are organized by region, beginning with “bays-wide” initiatives (initiatives that will occur throughout our planning area) and moving to projects occurring in individual regions. Clean Water Act Core Program Areas referenced below include: (1) strengthening water quality standards, (2) improving water quality monitoring, (3) developing total maximum daily loads, (4) controlling nonpoint source pollution on a watershed basis, (5) Strengthening National Pollution Discharge Elimination Permits, and (6) supporting sustainable wastewater infrastructure. Support of the EPA Wetlands Program is also indicated below.

- **A1a. Eelgrass Restoration and Conservation Moorings (ongoing):** MBP was awarded \$30,000 through by the Association of National Estuary Programs to undertake eelgrass restoration initiatives in the towns of Manchester by the Sea and Provincetown, Massachusetts. The project has already replaced 8 traditional block and chain moorings with low-impact conservation mooring systems in Manchester, and will replace 6 additional moorings in Provincetown. The project is expected to improve up to 4 acres of heavily impacted eelgrass.
 - Responsible Parties: Executive Director, Salem Sound RSP, Cape Cod RSP
 - Partners: Division of Marine Fisheries (DMF), The Nature Conservancy (TNC)
 - Budget: \$5630 MBP cash (carryover), \$30,000 ANEP Grant
 - Outputs/Deliverables: Up to 4 acres of eelgrass habitat improved, education and outreach materials, workshops
 - Intermediate Outcomes: improved local understanding of the value of eelgrass beds and options for reducing navigational impacts; expanded eelgrass habitat along the Massachusetts Coast
 - Long-Term Outcomes: Increased acreage of eelgrass within the MBP planning area
 - Region: Salem Sound and Cape Cod
 - Time Line: Installation of remaining conservation moorings and eelgrass transplants-summer 2011, outreach materials, fall 2011; monitoring ongoing through FY12.
 - CCMP Action Item: 3.14-Continue and expand current efforts to support eelgrass protection and restoration in Massachusetts and Cape Cod Bays.

- CWA Core Program Area: 2, Wetland program
- **A1b. Boston Harbor Habitat Atlas (ongoing):** MBP and the UMass Boston Urban Harbors Institute (UHI) received funding in 2012 from the Massachusetts Environmental Trust to develop a digital atlas of habitat protection and restoration opportunities for the Metro Boston Region. The project, which will be completed by the end of calendar year 2011, will establish a coalition of environmental groups to identify habitat data sources and priorities and increase the visibility of MBP in this region.
 - Responsible Parties: Executive Director, Special Projects Coordinator
 - Partners: UHI
 - Budget: \$13,881.17 MBP Cash (carryover); \$12,309 UHI (qualifying match)
 - Outputs/Deliverables: Digital atlas of prioritized habitat protection and restoration opportunities within the Metro Boston Region
 - Intermediate Outcomes: Shared understanding of habitat protection and restoration opportunities, increased success in securing funding for identified projects, increased habitat protection partnerships in the region
 - Long-Term Outcomes: Increased acreage and quality of priority habitats within the Metro Boston Region
 - Region: Metro Boston
 - Time Line: Draft on-line Atlas, October, 2011; Atlas completed, December, 2011.
 - CCMP Action Item: 3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: Wetland Program
- **A1c. Pepperweed Monitoring, Mapping, and Eradication (ongoing):** As part of its FY 11 Work Plan, MBP is working with the Massachusetts Audubon Society to develop a guide to identifying, mapping and monitoring pepperweed along New England salt marshes. In FY12, MBP will conduct a series of trainings in each of its regions to teach conservation agents, volunteer monitors, and other local organizations to track the spread and distribution of pepperweed. Since pepperweed has yet to be documented on Cape Cod, early detection efforts will be focused there.
 - Responsible Parties: RSPs
 - Partners, Mass Audubon Society, Parker River National Wildlife Refuge
 - Budget: \$0 MBP Cash; \$10,000 qualifying match Mass Audubon; \$3625 in qualifying in-kind match from SSCW and NSRWA
 - Outputs/Deliverables: Local databases of pepperweed occurrences in Mass Bays Regions
 - Intermediate Outcomes: Improved understanding of pepperweed distribution; reduced pepperweed population; increased local knowledge and awareness of the pepperweed problem
 - Long-Term Outcomes: (Potential) Eradication of pepperweed from the MBP planning area
 - Region: Bays-wide
 - Time Line: Pepperweed handbook to be completed by end of FY11; outreach and trainings will occur during summer and early fall
 - CCMP Action Item: Action Plan 3.13: Work with CZM to develop scientific methods for assessing the ecological integrity of coastal wetlands and to train volunteers in data collection.
 - CWA Core Program Area: 2, Wetland program
- **A1d. Diadromous Fish Run Monitoring (ongoing):** MBP RSPs will continue to lead efforts to monitor diadromous fish populations throughout the MBP planning area. Over 20

impacted and restored fish passage locations will be monitored in runs on the Upper North Shore, Cape Cod, and South Shore.

- Responsible Parties: RSPs
 - Partners: Citizen volunteers; municipalities
 - Budget: \$0 MBP Cash; \$14,600 in qualifying in-kind match from NSRWA and APCC
 - Outputs/Deliverables: volunteer fish count data reports
 - Intermediate Outcomes: Improved state and local understanding of diadromous fish run status in Massachusetts; baseline established for tracking changes in stream characteristics
 - Long-Term Outcomes: Increased spawning success of anadromous fish in the MBP planning area: increased survivorship of diadromous fish
 - Region: Bays-wide
 - Time Line: Monitoring will occur during the Spring fish run, 2012; ongoing
 - CCMP Action Item: 3.11- Prepare an up-to-date inventory of anadromous fish runs in the Massachusetts Bays region and develop a strategy to prioritize, restore, and maintain these runs.
 - CWA Core Program Area: 2, Wetland program
- **A1e. Cape Cod Water Resources Restoration Project (ongoing).** MBP will provide the Cape Cod Local Governance Committee, the Barnstable County Coastal Resources Committee (CRC), with technical assistance and coordination for the Cape Cod Water Resources Restoration Project (CCWRRP). The sum of \$6.5 million has been allocated through the American Recovery and Reinvestment Act for 17 stormwater remediation projects, six salt marsh restoration projects, and four fish run restoration projects to be completed during calendar year 2011. Anticipated activities include assisting CRC and partner agencies (NRCS, DER, DMF) with coordination and selection of projects to be funded for the second round of funding, review of the status and success of the first round of projects, and coordination of outreach events.
 - Responsible Parties: Cape Cod RSP
 - Partners: NRCS; Barnstable County Coastal Resources Commission, Cape Cod Communities
 - Budget: \$0 MBP Cash
 - Outputs/Deliverables: List of recommended projects for future funding
 - Intermediate Outcomes: Successful completion of the first round of restoration projects by December 2011. Improved fish passage, water quality, and salt marsh habitat in a number of Cape Cod Communities
 - Long-Term Outcomes: same as above
 - Region: Cape Cod
 - Time Line: Ongoing through FY12; First round of projects to be completed calendar year 2011
 - CCMP Action Item: 3.11- Prepare an up-to-date inventory of anadromous fish runs in the Massachusetts Bays region and develop a strategy to prioritize, restore, and maintain these runs. Action item: 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands
 - CWA Core Program Area: 2, 4, Wetland program
- **A1f. Stony Brook, Brewster, Watershed Restoration Project (ongoing):** The Stony Brook watershed and marsh complex encompasses 386 acres of salt marsh and anadromous fish habitat. An undersized culvert was replaced in Fall 2010, and the project is now in the post-restoration monitoring stage. MBP will lead monitoring activities, including, rare species

surveys, salt marsh monitoring, fish counts, water quality, water flow, and photo-monitoring of physical and biological conditions. This project is funded by a grant to the town from NOAA and the American Recovery and Reinvestment Act of 2009.

- Responsible Parties: Cape Cod RSP
 - Partners: Town of Brewster; Division of Ecological Restoration; Brewster Natural History Museum
 - Budget: \$0 MBP Cash; \$25,600 qualifying town match
 - Outputs/Deliverables: Report on the recovery of the Stony Brook Salt Marsh.
 - Intermediate Outcomes: Increased extent and depth of tidal flow over restored salt marsh
 - Long-Term Outcomes: Decreased rate of expansion of invasive Phragmites and related improvements in the restored marsh
 - Region: Cape Cod
 - Time Line: Ongoing through FY12, Monitoring reports submitted quarterly
 - CCMP Action item: 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands
 - CWA Core Program Area: 2, Wetland program
-
- **A1g: Lower Mill Pond, Brewster, Fish Passage Improvement (new).** The town of Brewster is developing plans to improve fish passage at the upper end of Stony Brook where it flows out of Lower Mill Pond. This project is partially supported by the town's NOAA-ARRA grant for salt marsh restoration described in Task A1f (above). MBP will assist the town with permitting, project management, monitoring, and grant writing to obtain funding for implementation.
 - Responsible Parties: Cape Cod RSP
 - Partners: Town of Brewster
 - Budget: \$0 MBP Cash
 - Outputs/Deliverables: Design plans and permits for the Lower Mill Pond fish passage
 - Intermediate Outcomes: Increased success of herring migration and spawning in the Stony Brook System
 - Long-Term Outcomes: Increased adult herring population in the watershed
 - Region: Cape Cod
 - Time Line: Ongoing through FY12; Detailed project plan under development
 - CCMP Action Item: 3.11- Prepare an up-to-date inventory of anadromous fish runs in the Massachusetts Bays region and develop a strategy to prioritize, restore, and maintain these runs.
 - CWA Core Program Area: Wetland program
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- **A1h. Critical Habitats Atlas of Cape Cod (ongoing):** The goal of this project is to update APCC's Critical Habitats Atlas of Cape Cod, which identifies sensitive and critical habitats throughout this region. The original Atlas was published in 1990 and has been used by towns and the Cape Cod Commission as a tool for evaluating potential ecological impacts of proposed development projects. Since 1990, much new information has become available, calling for an update of the Atlas. This is a multi-year project, which will require information collection and obtaining input and technical services from local and regional experts familiar with Cape Cod's coastal habitats, ecology, botany, wildlife, and natural resources. This project will also support the update of the CCMP through collection of information on locations and condition of coastal habitats (see Task J1).
 - Responsible Parties: Cape Cod RSP
 - Partners: Various keepers of coastal habitat data; Cape Cod communities
 - Budget: \$0 MBP Cash; \$20,000 qualifying cash match from a private foundation

- Outputs/Deliverables: Information on natural communities on Cape Cod; updated maps, and revised roadmap for completing the Atlas.
 - Intermediate Outcomes: Improved understanding of the location and condition of critical coastal habitats on Cape Cod. Improved capacity to protect sensitive habitat Improved management of sensitive habitats
 - Long-Term Outcomes: Improved quality of priority habitats on Cape Cod
 - Region: Cape Cod
 - Time Line: Draft Outline of Atlas, Summer 2011; Contractor hired to conduct field surveys, Fall 2011
 - CCMP Action Item: 3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: Wetland program
- **A1i. Habitat Restoration Technical Assistance (ongoing):** The Cape Cod RSP will provide ongoing support for salt marsh and fish run restoration initiatives. Specific projects to be advanced this year include the Mayo Creek (Wellfleet) Salt Marsh Restoration Feasibility Study, Upper Shawme Pond (Sandwich) Fish Run Restoration, and Cedar Pond Management Plan (Orleans).
 - Responsible Parties: Cape Cod RSP
 - Partners: Cape Cod Communities; Division of Ecological Restoration; Division of Marine Fisheries
 - Budget: \$0 MBP Cash
 - Outputs/Deliverables: Restoration feasibility studies and post restoration monitoring reports, as appropriate
 - Intermediate Outcomes: Short term/implementable restoration and management plans for the habitats described above
 - Long Term Outcomes: Improved fish passage and spawning habitat in Cape Cod watersheds
 - Region: Cape Cod
 - Time Line: Ongoing through FY12, Varies by project
 - CCMP Action Item: 3.11- Prepare an up-to-date inventory of anadromous fish runs in the Massachusetts Bays region and develop a strategy to prioritize, restore, and maintain these runs. CCMP Action item: 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands
 - CWA Core Program Area: Wetland program
- **A1j. Monitor the condition of salt marshes in the South Shore Region (ongoing):** The South Shore RSP will oversee and train Cohasset Center for Student Coastal Research (CSCR) students in vegetation, nekton, and benthic invertebrate monitoring for the Division of Ecological Restoration (DER) wetlands program and conduct monitoring at sites around the South Shore. Sites will include Mushquashcut Pond, Broad Cove, Green Harbor, and Parker Ave. Cut. MBP will also assist CSCR and DER with data management and reporting.
 - Responsible Parties: South Shore RSP
 - Partners: Cohasset Center for Student Coastal Research; Division of Ecological Restoration
 - Budget: \$0 MBP Cash
 - Outputs/Deliverables: Vegetation, nekton, and invertebrates monitoring data; summary reports on 2011 monitoring season
 - Intermediate Outcomes: Improved understanding of the condition of South Shore salt marshes, effectiveness of restoration activities, and priorities for restoration
 - Long-Term Outcomes:
 - Region: South Shore

- Time Line: Monitoring Data collected through summer and fall, 2011. Data Reports, winter 2011-2012
- CCMP Action Item: 3.11- 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands
- CWA Core Program Area: Wetland program

- **A1k: First Herring Brook Restoration (ongoing):** The South Shore RSP and host, the North and South Rivers Watershed Association, will assist the Town of Scituate with efforts to restore the First Herring Brook, including in-stream and impoundment habitat supportive of diadromous fish and other resident organisms. MBP will work with DER and the town to evaluate potential steps towards restoration such as installation of fish ladders and new water management and conservation strategies. MBP will also conduct supplemental monitoring as needed.
 - Responsible Parties: South Shore RSP; NSRWA
 - Partners: Town of Scituate; Division of Ecological Restoration
 - Budget: \$0 MBP Cash; \$11,550 in qualifying in-kind match from NSRWA
 - Outputs/Deliverables: Report on evaluation of water conservation strategies;
 - Intermediate Outcomes: Improved habitat quality of First Herring Brook
 - Long-Term Outcomes: Increased spawning success of anadromous fish
 - Region: South Shore
 - Time Line: Evaluation of Water Conservation Strategies completed spring 2012
 - CCMP Action Item: 3.11- 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands; Prepare an up-to-date inventory of anadromous fish runs in the Massachusetts Bays region and develop a strategy to prioritize, restore, and maintain these runs. CCMP Action item.
 - CWA Core Program Area: Wetland program

- **A1l: Third Herring Brook Restoration (ongoing):** The South Shore RSP will work to improve habitat, water quality, and quantity in the Third Herring Brook by pursuing stream restoration and dam removal where possible. In-stream flow will continue to be monitored to evaluate any impacts from water withdrawals.
 - Responsible Parties: South Shore RSP; NSRWA
 - Budget: \$0 MBP Cash;
 - Outputs/Deliverables: Feasibility study for Peterson's Pond Dam and Tack Factory Pond Dam removal (pending funding); Initiation of restoration work at Mill Pond Dam (pending funding)
 - Intermediate Outcomes: Improved habitat quality of Third Herring Brook
 - Long-Term Outcomes: Improved spawning success of anadromous fish
 - Region: South Shore
 - Time Line: Feasibility study for Peterson's Pond Dam and Tack Factory Pond Dam removal, spring 2012 (pending funding)
 - CCMP Action Item: 3.11- 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands; Prepare an up-to-date inventory of anadromous fish runs in the Massachusetts Bays region and develop a strategy to prioritize, restore, and maintain these runs.
 - CWA Core Program Area: Wetland program

- **A1m: Inner Little Harbor Tide Gate Management (ongoing):** The South Shore RSP will support the Town of Cohasset's efforts to develop a tide gate management plan for Inner Little Harbor at Cat Dam. MBP will assist the town's consultant with monitoring of habitat and water quality and support for an ecologically beneficial management plan.

- Responsible Parties: South Shore RSP; NSRWA
 - Partners: Office of Coastal Zone Management; Town of Cohasset
 - Budget: \$0 MBP Cash
 - Outputs/Deliverables: Benthic invertebrates data; public meetings to discuss tide gate management plan
 - Intermediate Outcomes: Implemented tide-gate management plan
 - Long-Term Outcomes: Improved habitat quality of Inner Little Harbor (primarily salt marsh and surface waters)
 - Region: South Shore
 - Time Line: Benthic invertebrate data collected through summer 2011 field season; public meeting winter 2011-2012
 - CCMP Action Item: 3.11- 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands; Prepare an up-to-date inventory of anadromous fish runs in the Massachusetts Bays region and develop a strategy to prioritize, restore, and maintain these runs
 - CWA Core Program Area: Wetland program
- **A1n: Monitor Pre and Post Restoration Conditions of Salem Sound Salt Marshes (ongoing):** The Salem Sound RSP will continue salt marsh monitoring at Thissell Marsh (Beverly), Old Creek and Pickman Park (Salem), and at other salt marshes to be determined with DER Master Service Agreement.
 - Responsible Parties: Salem Sound RSP
 - Partners: Citizen volunteers
 - Budget: \$0 MBP Cash; \$12,235 qualifying cash contribution from SSCW and DER
 - Outputs/Deliverables: Data reports documenting marsh condition; Old Creek Salt Marsh Evaluation for Salem State University
 - Intermediate Outcomes: Improved understanding of the condition of Salem Sound salt marshes; improved understating of the success of restoration techniques; identification of restoration opportunities
 - Long-Term Outcomes: Improved quality of salt marsh habitats within Salem Sound
 - Region: Salem Sound
 - Time Line: Data collection through the 2011 field season; data reports fall and winter, 2012
 - CCMP Action Item: 3.11- 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands
 - CWA Core Program Area: Wetland program
- **A1o: Development of the Conservation Assessment and Prioritization System (ongoing):** The Salem Sound RSP will collect, sort, and identify coastal wetland macroinvertebrates to assist CZM, DER and the Department of Natural Resources Conservation at the University of Massachusetts in Amherst (UMass) to adapt an existing UMass Conservation Assessment and Prioritization System (CAPS) model to coastal wetlands. MBP will provide data on macroinvertebrate populations at randomly selected coastal wetland sites for validation of the conceptual CAPS model, which has been adapted for use in coastal wetlands.
 - Responsible Parties: Salem Sound RSP
 - Partners: Office of Coastal Zone Management, Department of Environmental Protection
 - Budget: \$0 MBP Cash; \$10,000 qualifying cash match
 - Outputs/Deliverables: Field Data Reports provided to CZM
 - Intermediate Outcomes: Improved ability to assess condition of coastal wetlands and develop enforceable protection and restoration strategies

- Long-Term Outcomes: Incorporation of wetland condition into Massachusetts water quality standards
 - Time Line: Data collected through summer field season; Data Report April 2012
 - CCMP Action Item: 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands
 - CWA Core Program Area: 1, Wetland program
- **A1p: Upper Great Marsh Phragmites Control (ongoing):** The Upper North Shore RSP will coordinate effort to control and eradicate stands of common reed (*Phragmites australis*) in the Newbury and Newburyport sections of the Great Marsh system through physical (burning) and chemical means. Approximately 300 stands will be treated. MBP will also coordinate follow up monitoring activities.
 - Responsible Parties: Upper North Shore RSP
 - Partners: Parker River National Wildlife Refuge; Northeast Mosquito Control
 - Budget: \$0 MBP Cash; \$75,000 North American Wetland Conservation Act Grant
 - Outputs/Deliverables: Monitoring report on success of treatment efforts
 - Intermediate Outcomes: Reduced acreage of Phragmites invasion
 - Long-Term Outcomes: Identification of most appropriate methods of Phragmites control
 - Region: Upper North Shore
 - Time Line: Control will occur during the summer 2011 growing season
 - CCMP Action Item: 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands
 - CWA Core Program Area: Wetland program
- **A1q: Map and Control Phragmites in Salisbury (new):** The Upper North Shore RSP will map all Phragmites stands located within the Black Rock Creek and Blackwater River (to NH border) marshes in Salisbury, obtain landowner permission, and initiate physical and chemical control efforts. Approximately 2000 acres of salt marsh will be mapped and treatment acres determined based on findings.
 - Responsible Parties: Upper North Shore RSP; Merrimac Valley Planning Commission
 - Partners: Department of Conservation and Recreation
 - Budget: \$0 MBP Cash; \$25,000 qualifying grant from the MA Department of Conservation and Recreation
 - Outputs/Deliverables: Map of Phragmites stands in Salisbury and associated report on control efforts,
 - Intermediate Outcomes: Reduced acreage of Phragmites invasion
 - Long-Term Outcomes: same as above
 - Time Line: Mapping will occur during Summer and Fall 2011, Report on monitoring efforts, Fall 2011
 - CCMP Action Item: 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands
 - CWA Core Program Area: Wetland program
- **A1r: Great Marsh Pepperweed (*Lepidium latifolium*) Monitoring and Control (ongoing):** The Upper North Shore RSP will continue the in-the-field monitoring and control of pepperweed in those estuarine areas that have not yet been evaluated. An estimated 100 additional stands will be mapped and up to 75 stands will be controlled/eradicated during the summer field sampling season.
 - Responsible Parties: Upper North Shore RSP;
 - Partners: Massachusetts Audubon Society

- Budget: \$0 MBP Cash; \$10,000 qualifying in-kind contribution of the Massachusetts Audubon Society
- Outputs/Deliverables: Map of Pepperweed stands and report on control efforts
- Intermediate Outcomes: Reduced acreage of pepperweed invasion
- Long Term Outcomes: (Potential) eradication of pepperweed from the Great Marsh complex
- Region: Upper North Shore
- Time Line: Monitoring and Control will occur during Summer and Fall 2011, maps delivered in Fall 2011
- CCMP Action Item: 3.11- 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands
- CWA Core Program Area: Wetland program

Objective A2: *Reduce and prevent stormwater pollution*

MBP will continue to play a key role in assisting communities and citizens in minimizing impacts from stormwater pollution. Efforts in 2012 will focus on providing technical assistance to communities in complying with NPDES Phase II requirements and assessing sources of stormwater contamination. MBP will continue to promote the Greenscapes program, and ensure that this effort continues to address priority stormwater management issues within each region.

- **A2a: Greenscapes (ongoing):** Communities in three MBP Regions, Upper North Shore, Salem Sound, and South Shore, will continue to participate in the Greenscapes Program MBP RSPs will provide outreach information, materials, and trainings to participating communities on stormwater impacts from residential properties and mitigation options. In FY12, a Notice of Intent tailored to the educational requirements of the NPDES Phase II permit will be drafted for participating communities. The Greenscapes Coalition will continue the evaluation of the new draft EPA Phase II Stormwater Permit to determine the best outreach messages for member communities.
 - Responsible Parties: Upper North Shore, Salem Sound, and South Shore RSP
 - Partners: Participating communities
 - Budget: \$0 MBP Cash; \$27,500 qualifying cash and in-kind contribution of Greenscapes Communities
 - Outputs/Deliverables: Functioning Greenscapes website, Greenscapes workshop, dissemination of three Greenscapes flyers; NPDES Education and Outreach NOI for participating communities
 - Intermediate Outcomes: Improved understanding on the part of homeowners of the relationship between home care practices and stormwater runoff
 - Long-Term Outcomes: Modified homeowner practices on residential properties associated with stormwater runoff; improved water quality
 - Region: Upper North Shore, Salem Sound, South Shore
 - Time Line: Ongoing through FY12, Regional Coordinators will begin drafting permits upon release of the new NPDES MS4 permit
 - CCMP Action Item: 4.11-Provide technical assistance for developing and implementing non-structural stormwater BMPs
 - CWA Core Program Area: 4
- **A2b: Cape Cod Stormwater Outreach (ongoing):** The Cape Cod RSP will continue to work with project partners on Cape Cod to provide stormwater outreach to communities through a variety of media and outreach workshops. In 2010, APCC teamed with the consulting firms of VHB and Horsley Witten (HW) Group to plan a stormwater workshop that will be held in 2011. A pre-workshop survey identified specific stormwater topics of

interest to Cape Cod communities, and this will be used to select future stormwater outreach topics.

- Responsible Parties: Cape Cod RSP
 - Partners: VHB and HW Consultants; Cape Cod Communities
 - Budget: \$0 MBP Cash
 - Outputs/Deliverables: Workshop agenda and materials; a minimum of one workshop
 - Intermediate Outcomes: Renewed interest by citizens and municipal officials in managing stormwater and meeting new state and federal requirements
 - Long-Term Outcomes: Increased compliance with NPDES Phase II requirements; improved water quality
 - Region: Cape Cod
 - Time Line: Ongoing through FY 2012; Workshop will be held in Fall 2011
 - CCMP Action Item: 4.10-Develop and implement stormwater management plans for compliance with Phase II NPDES regulations
 - CWA Core Program Area: 4,5, Wetland program
- **A2c: Cape Cod Water Resources Restoration Project (ongoing).** See A1e, above
 - **A2d: South River Bacterial Source Tracking (ongoing):** The South Shore RSP will utilize data collected and BMPs designed as part of the previous year's DEP grant to assist the town in pursuing funding for BMP installation. MBP will also work with the Massachusetts Department of Environmental Protection (DEP) to further identify bacterial sources discovered as part of 2010 sampling.
 - Responsible Parties: South Shore RSP
 - Partners: Town of Scituate; Department of Environmental Protection; citizen volunteers
 - Budget: \$0 MBP Cash; \$4945 in qualifying in-kind contribution of state and local officials and volunteers
 - Outputs/Deliverables: Grant application for implementing BMPs; additional bacterial sampling data
 - Intermediate Outcomes: Installation of appropriate stormwater BMPs
 - Long-Term Outcomes: Improved water quality of the South River
 - Time Line: Ongoing through FY 2012; Grant application to be prepared for the Coastal Pollutant Remediation Grant Program upon its release, usually in Fall
 - CCMP Action Item: 4.2-Implement BMPs to mitigate existing stormwater discharges that are causing or contributing to the closure of shellfish harvesting areas or swimming beaches.
 - CWA Core Program Area: 2, 4, Wetland program
 - **A2e: South Shore Municipal Stormwater Outreach (ongoing):** The South Shore RSP will work with communities to pursue stormwater management as a follow-up to the previous year's workshop. MBP will also offer mapping of impervious surface percentages at a subwatershed scale in a pilot community.
 - Responsible Parties: South Shore RSP
 - Partners: South Shore Communities; Pilot communities TBD
 - Budget: \$0 MBP Cash; \$29,250 in qualifying match from state and local officials, NSRWA staff, and volunteers
 - Outputs/Deliverables: Map of impervious surface in pilot community
 - Intermediate Outcomes: Improved local understanding of stormwater impacts and remediation options
 - Long-Term Outcomes: Improved water quality in the South Shore Region
 - Region: South Shore

- Time Line: Ongoing through FY 2012, impervious surface map produced spring, 2012
 - CCMP Action Item: 4.10-Develop and implement stormwater management plans for compliance with Phase II NPDES regulations
 - CWA Core Program Area: 4, 5, Wetland program
- **A2f. Salem Sound Clean Beaches and Streams Program (ongoing):** As part of this ongoing program, the Salem Sound RSP trains and coordinates volunteers to sample up to 30 stormwater outfalls throughout the watershed twice weekly during the field season. The program has identified numerous sources of bacteria, informed the public about the risk of swimming and wading in contaminated waters, and resulted in the initiation of important stormwater remediation projects.
 - Responsible Parties: Salem Sound RSP
 - Partners: Volunteer water quality monitors
 - Budget: \$0 MBP Cash; \$8,000 qualifying cash and in-kind match from Salem Sound Coastwatch
 - Outputs/Deliverables: Bacterial analysis and deliverables for 30 stormwater outfalls in Salem Sound
 - Intermediate Outcomes: Improved understanding of stormwater mitigation priorities in Salem Sound
 - Long-Term Outcomes: Implementation of priority stormwater BMPs; improved water quality in Salem Sound
 - Region: Salem Sound
 - Time Line: Sampling and data analysis will occur June 2011-September 2011
 - CCMP Action item: 4.2-Implement BMPs to mitigate existing stormwater discharges that are causing or contributing to the closure of shellfish harvesting areas or swimming beaches
 - CWA Core Program Area: 2, 4

Objective A3: *Protect and enhance shellfish resources*

MBP will continue to protect shellfish resources, primarily through the restoration of salt marsh habitat and the mitigation of stormwater pollution. As part of the FY11 Research and Planning Grant Program, MBP is supporting the development of the Massachusetts “Shellfish Bed Restoration Guidelines,” and will use those guidelines to develop future restoration initiatives.

- **A3a: Cape Cod Water Resources Restoration Project (ongoing).** See A1e, above
- **A3b: Salem Sound Shellfish Closure Investigation (new):** The Salem Sound RSP will develop a strategy for investigating the causes and potential solutions related to the harvest of shellfish in Salem Sound, which is currently prohibited. The project will include identification of sources of contamination and limited water quality and biological sampling.
 - Responsible Parties: Salem Sound RSP
 - Partners: Massachusetts Division of Marine Fisheries
 - Budget: \$0 MBP Cash; \$4,000 qualifying cash match from Salem Sound Coastwatch
 - Outputs/Deliverables: Preliminary report of sources of contamination
 - Intermediate Outcomes: Plan for opening portions of Salem Sound to shellfish harvest
 - Long-Term Outcome: Shellfish beds open to harvest
 - Region: Salem Sound
 - Time Line: Sampling and data analysis will occur June 2011-September 2011

- CCMP Action item: 4.2-Implement BMPs to mitigate existing stormwater discharges that are causing or contributing to the closure of shellfish harvesting areas or swimming beaches
- CWA Core Program Area: 2, 4
- **A3c. Identify Sources of Shellfish Bed Contamination in the Great Marsh (new):** The Upper North Shore RSP will develop a plan to investigate large pollution sources contributing bacterial contamination into the shellfish beds of the Great Marsh, including Merrimack River estuary, Plum Island Sound, Ipswich River and Bay, Sandy Bay, and Gloucester Harbor. MBP will initiate the process with a desktop assessment, followed by a series of stakeholder consultation sessions designed to refine the results of this assessment and identify priorities at the embayment/subembayment scale.
 - Responsible Parties: Upper North Shore RSP
 - Partners: 8 Towns and the Bay local governance committee
 - Budget: \$0 MBP Cash
 - Outputs/Deliverables: Review of relevant information sources for assessing sources of bacterial contamination, a minimum of two regional stakeholder meetings, and a compiled list of management priorities for each subembayment/region.
 - Intermediate Outcomes: BMPs implemented for mitigating bacterial contamination;
 - Long Term Outcome: Improved water quality and shellfish bed habitat
 - Region: Upper North Shore
 - Time Line: Ongoing through 2012; Review of data sources, Fall 2011; Regional stakeholder meetings, Winter-Spring, 2012
 - CCMP Action item: 4.2-Implement BMPs to mitigate existing stormwater discharges that are causing or contributing to the closure of shellfish harvesting areas or swimming beaches
 - CWA Core Program Area: 4

Objective A4: *Manage local land use and growth*

MBP and its RSPs will continue to provide technical assistance on Low Impact Development and Smart Growth within the MBP Planning area through programs such as Greenscapes. While staff and RSPs are active on local boards and committees related to local land use and growth, no major initiatives are planned, so far, for FY2012. MBP and the Salem Sound RSP are also developing strategies to encourage sustainable reuse of Brownfield sites.

Objective A5: *Manage municipal wastewater*

MBP staff and RSPs have played a crucial role in the designation of Massachusetts and Cape Cod Bay as a boat waste No Discharge Area. RSPs will continue to provide outreach and technical assistance related to boat waste issues in conjunction with CZM and EPA. In addition, the Cape Cod RSP will continue to provide local technical assistance on the development of Municipal Wastewater Management Plans, which are critical for the successful implementation of nutrient TMDLs on Cape Cod.

Objective A6: *Manage marine invasive species*

MBP will continue to play a lead role in monitoring for marine invasive species, educating the public about the threats from these organisms and preventing their spread, and advancing state and local policies that minimize new invasions.

A6a. Support the Marine Invasive Species Monitoring and Information Collaborative (ongoing): MBP will continue to support the Marine Invader Monitoring and information Collaborative (MIMIC) by organizing volunteers to monitor for marine invasive species in the Upper North Shore, Salem Sound, and South Shore regions. New for FY12, the Cape

Cod RSP will initiate a comprehensive marine invasive species monitoring effort pending a grant from the Massachusetts Environmental Trust. RSPs will coordinate monitoring at a minimum of 20 sites throughout the MBP planning area.

- Responsible Parties: RSPs
- Partners: Massachusetts Office of Coastal Zone Management; MIT Sea Grant
- Budget: \$0 MBP Cash; \$2100 in-kind NSRWA: \$30,000 pending grant from MET
- Outputs/Deliverables: Data reports for a minimum of 20 locations; data uploaded to MIMIC web site and database
- Intermediate Outcomes: Improved understanding of invasive species colonization, transport, dispersal and distributions in Massachusetts and Cape Cod Bays
- Long-Term Outcome: Reduced rate of invasive species colonization
- Region: Bays-wide
- Time Line: Sampling from May-November 2010; Data Reports/entry into MIMIC database, Fall-Winter, 2010
- CCMP Action item: 16.2-Develop a monitoring strategy for marine invasive species and periodically conduct rapid assessment surveys
- CWA Core Program Area: Wetland Program

Objective A7: *Monitor marine waters*

As part of the CCMP update process, MBP will be gathering information on the health and characteristics of marine and estuarine waters throughout the MBP planning area. Results will be used to develop priorities for the monitoring of marine waters for the forthcoming CCMP. However, this Action item may be incorporated into other focus areas, such as “Reducing and preventing stormwater pollution” and Protecting and enhancing shellfish resources.” MBP is exploring efforts to enhance marine monitoring efforts beginning with the development of indicators of ecosystem health for each region.

Objective A8: *Adapt for projected impacts of climate change*

The MBP/EPA Climate Ready Estuaries partnership will position the program for ongoing work in the area of climate change vulnerability assessment and adaptation. In addition, MBP will use this effort to begin the process of incorporating climate considerations into all components of its forthcoming CCMP.

- **A8a. Climate Ready Estuaries (ongoing):** The EPA/MBP Climate Ready Estuaries Partnership is ongoing and a final report on the Expert Elicitation Workshop is expected near the end of FY2011. Based on this report, MBP will map out a plan for its role in addressing vulnerabilities of watersheds within the Mass Bays planning area, particularly salt marshes and other natural coastal communities.
 - Responsible Parties: MBP Director, EPA
 - Partners: Expert Scientists from Mass Audubon, UNH. Wells National Estuarine Research Reserve, EPA and other organizations
 - Budget: \$0 MBP Cash
 - Outputs/Deliverables: Final Report
 - Intermediate Outcomes: Identification of MBP’s role in promoting resiliency of natural systems in the MBP planning area
 - Long-Term Outcome: Improved management of salt marsh and estuarine systems in the context of climate change and sea level rise
 - Region: Bays-wide
 - Time Line: Final report anticipated early summer, 2011
 - CCMP Action item: This is a new item in our Strategic Plan, which will be incorporated into our next CCMP revisions

- CWA Core Program Area: Wetland Program
- **A8b: Storm Smart Coasts Program Partnership (new):** In Spring of 2011, the Office of Coastal Zone Management's Storm Smart Coastal Program will issue a Request for Responses for technical assistance. The program expects to provide assistance to up to five communities in planning for the impacts of climate change and sea level rise. MBP will work directly with Storm Smart Coasts to identify funding needs for the program, and will consider these projects as a priority for funding through the FY12 Research and Planning Grants.
 - Responsible Parties: MBP Director, Staff Scientist, CZM
 - Partners: Participating communities (TBD)
 - Budget: \$0 MBP Cash (grants may be awarded on a competitive basis through the Research and Planning Grant Program)
 - Outputs/Deliverables: TBD based on selected projects
 - Intermediate Outcomes: Increased resiliency of coastal communities to climate change
 - Long-Term Outcomes: Same as above
 - Region: Bays-wide
 - Time Line: MBP Research and Planning Grant RFP released Summer 2011; projects will extend through the balance of the fiscal year
 - CCMP Action item: This is a new item in our Strategic Plan, which will be incorporated into our next CCMP revisions
 - CWA Core Program Area: Wetland Program
- **A8c. Adopt a Beach (ongoing):** The Salem Sound adopt a beach program will continue to train volunteers to collect long-term data documenting the impacts of sea level rise to area beaches as well as coastal streams and infrastructure. The program will train volunteers to conduct beach profiling exercises and coastal surveys to document accretion and erosion rates and other indicators of change related to climate stressors.
 - Responsible Parties: Salem Sound RSP
 - Partners: Citizen volunteers
 - Budget: \$0 MBP Cash; \$2,000 qualifying cash match from Salem Sound Coastwatch
 - Outputs/Deliverables: Beach profiles of a minimum of four area beaches and data report
 - Intermediate Outcomes: Improved understanding of beach erosion and accretion rates in Salem Sound
 - Long-Term Outcome: Improved management of beaches in the context of climate change and sea level rise
 - Region: Salem Sound
 - Time Line: Monitoring will occur through 2011-2012
 - CCMP Action item: This is a new item in our Strategic Plan, which will be incorporated into our next CCMP revisions
 - CWA Core Program Area: Wetland Program

VII. Previous Year Activities

The following section provides a description of major activities undertaken by MBP during FY11 beginning with Bays-wide initiative and moving through estuarine protection and restoration efforts specific to each region. The following list represents highlights of major program focus areas, and does not represent the full range of project management, technical assistance, and capacity building efforts undertaken by MBP staff and RSPs.

Objective A1: *Protect and enhance coastal habitat*

Massachusetts Bays Program Research and Planning Grants. In FY11, MBP launched a small grants program targeted at municipalities within our planning areas as well as non-profit originations. The Research and Planning Grants awarded \$200,000 for eight projects, as described above.

- Lead: MBP
- 320 Budget: \$200,000 MBP cash
- Project deliverable(s): Eight funded projects described above
- Environmental results: Varies by project
- Role: Primary

Diadromous Fish Run Monitoring: MBP utilized funding from the Massachusetts Environmental Trust to install water level and temperature data loggers in streams throughout the MBP planning area. Volunteers counted fish in these streams and the volunteer and logger data were entered into an online database. A workshop in partnership with NOAA was held in Southeastern Massachusetts to share data and discuss the status of herring in Massachusetts.

- Lead: South Shore RSP in conjunction with RSPs from additional regions
- 320 Budget: \$0 MBP Cash
- Project deliverables: On-line anadromous fish run database; Report to MET
- Environmental results: Baseline data collected on anadromous fish run populations and climate indicators
- Role: Primary

Eelgrass Restoration and/Conservation Moorings: MBP was awarded \$30,000 through by the Association of National Estuary Programs to undertake eelgrass restoration initiatives in the towns of Manchester by the Sea and Provincetown, Massachusetts. To date, the project has replaced 8 traditional moorings with conservation moorings in Manchester, and 6 more will be replaced in Provincetown during the summer of 2010. A major constraint included willingness of boaters to accept the conservation mooring technology as a safe and practical alternative.

- Lead: Executive Director, Salem Sound RSP, Cape Cod RSP
- 320 Budget: \$10,000 MBP cash
- Project Deliverables: 8 moorings installed; publication on eelgrass and moorings in the Cape Cod Boaters Guide; two regional workshops
- Environmental Results: about 2 acres of eelgrass restored and many more improved
- Role: Primary

Pepperweed Monitoring, Mapping, and Eradication: In FY11, MBP began developing a bays wide pepperweed (*Lepidium latifolium*) monitoring, mapping, and education initiative. The effort focuses on mapping stands of pepperweed where it is currently established (Upper North Shore, Salem Sound), and educating communities about incipient occurrences in areas where populations have yet to be documented. MBP has begun developing standard education and outreach materials for the entire planning area as well as a shared pepperweed outreach plan.

- Lead: MBP Upper North Shore RSP; Massachusetts Audubon Society
- 320 Budget: \$10,000 MBP cash
- Project deliverable(s): Draft Pepperweed handbook and presentation (to be finalized by the end of FY11)
- Environmental results: Reduced population of pepperweed on the Upper North Shore
- Role: Primary

Great March *Phragmites* monitoring and control: The Upper North Shore RSP continues to play a lead role in mapping and active management of the common reed (*Phragmites australis*) and pepperweed in the great marsh system. MBP was successful in securing a grant from the Department of Conservation and Recreation to expand *Phragmites* mapping and control to the northern fringes of the Great Marsh in Salisbury (\$25,000) as well as a grant from the North American Wetland Conservation Act fund for ongoing mapping and control work. In addition, the Great Marsh Revitalization Legislative Task Force was established, bringing together a number of additional stakeholders, including legislators, in an effort to eradicate *Phragmites* from the Great Marsh.

- Lead: Upper North Shore RSP
- 320 Budget: \$0 MBP cash
- Project deliverable(s): Two grants in support of the project secured; two meetings of the Great Marsh Legislative Action Committee
- Environmental results: Control of approximately 75 acres of *Phragmites* in the Great Marsh
- Role: Primary

State of Salem Sound Conference: This past March, Salem Sound Coastwatch marked its twentieth anniversary by organizing a “State of Salem Sound” symposium. A two-day conference was held and attended by over 100 participants each day. Additional details are found in “Program Highlights,” above.

- Lead: Salem Sound RSP
- 320 Budget: \$10,000 MBP Cash
- Project deliverable(s): 2 day workshop and posters associated with talks; proceedings forthcoming
- Environmental results: The program highlighted improvements in water quality and a return of wildlife to Salem Sound as a result of cleanup efforts
- Role: Primary

Boston Harbor Habitat Atlas: MBP and the UMass Boston Urban Harbors Institute (UHI) won a grant from the Massachusetts Environmental Trust to develop a digital atlas of habitat protection and restoration opportunities for the Metro Boston Region. The project, which began in the summer of 2010, has established a coalition of over 40 constituents in the Metro Boston Region who will be working to identify restoration opportunities. The coalition has already identified eight priority habitat types, and has begun to develop an on-line habitat atlas for Boston Harbor.

- Lead: MBP Director; Urban Harbors Institute
- 320 Budget: \$15,000 MBP cash
- Project deliverable(s): Established habitat coalition; description of priority habitat types; draft language for habitat atlas
- Environmental results: Forthcoming
- Role: Primary

South Shore Stream Restoration Plan: MBP has begun work to generate a prioritized list of stream restoration opportunities in the South Shore Region. The South Shore RSP has begun to integrate existing data with field surveys and local knowledge to develop a draft list of priority sites for restoration (dam removal/breaching, culvert replacement).

- Lead: MBP South Shore RSP
- 320 Budget: \$10,000 MBP Cash
- Project deliverable(s): Field survey of streams and obstructions in the South Shore Region; GIS maps of culverts in the planning area
- Environmental results: Improved understanding of stream restoration priorities
- Role: Primary

South Shore Anadromous Fish Restoration: MBP made significant advances in the protection of anadromous fish on the South Shore in FY11. Three years of studies on the restoration of River Herring to First Herring Brook were presented at a summer public forum. The studies are the result of a partnership between the Town of Scituate, the North and South Rivers Watershed Association (NSRWA), the First Herring Brook Watershed Initiative, and a team led by The Nature Conservancy, MBP, and the Massachusetts Division of Ecological Restoration. The studies focused on several key issues, including: (1) management of the Town of Scituate's water to maintain a healthy in-stream habitat, (2) re-introduction of the herring population, and (3) identification of potential sources of untapped water that could be used to supply municipal and ecological demand. MBP is working with the town of Scituate to develop a water conservation plan that will be necessary before additional restoration measures can be taken. The South Shore RSP coordinated additional anadromous fish protection efforts including a bucket brigade that transported over 18,000 adult herring past a broken fish ladder to their spawning grounds in the Herring Brook River Watershed.

- Lead: South Shore RSP
- 320 Budget: \$0 MBP Cash
- Project deliverable(s): Symposium and proceedings
- Environmental results: Development of a First Herring Brook water conservation plan underway; Increased spawning success of over 18,000 adult herring.
- Role: Primary

Critical Habitat Atlas of Cape Cod: MBP Cape Cod RSP, the Association to Preserve Cape Cod has begun to update its Critical Habitats Atlas of Cape Cod, focusing on identifying sensitive coastal habitats that are in need of special protection. The existing Atlas, which identifies sensitive and critical habitats throughout Cape Cod, was created by APCC more than a decade ago and has been used by the Cape Cod Commission to review Developments of Regional Impact for potential impacts on sensitive natural resources.

- Lead: MBP Cape Cod RSP
- 320 Budget: \$10,000 MBP Cash
- Project deliverable(s): January habitat expert consultation workshop; annotated list of Natural Heritage and Endangered species on Cape Cod to be included in the Atlas
- Environmental results: Forthcoming
- Role: Primary

Cape Cod Water Resources Restoration Project technical assistance: As outlined above, Cape Cod Communities were awarded over \$6 million dollars this past year for over 20 stormwater remediation, salt marsh restoration, and anadromous fish run improvements projects. The Cape Cod RSP was instrumental in working with communities to identify priority projects, conduct pre-restoration monitoring, and facilitate communication between NRCS, state agencies, and local communities.

- Lead: MBP Cape Cod RSP
- 320 Budget: \$0 MBP Cash
- Project deliverable(s): List of priority projects to be completed in calendar year 2011 (17 stormwater remediation projects, six salt marsh restoration projects, and four fish run restoration projects)
- Environmental results: Significant improvements in water and habitat quality anticipated

- following restoration in 2011
- Role: Significant

Cape Cod Habitat Planning and Restoration: As outlined above, the Stony Brook, Brewster, restoration project was completed in 2010, and post restoration monitoring is ongoing. In addition to this project, the Cape Cod RSP has provided technical assistance on a number of Cape Cod salt marsh and anadromous fish run restoration projects including Mayo Creek (Wellfleet) Salt Marsh Restoration Feasibility Study, Upper Shawme Pond (Sandwich) Fish Run Restoration, and Cedar Pond Management Plan (Orleans)

- Lead: Cape Cod RSP
- 320 Budget: \$0 MBP Cash
- Project deliverable(s): Completed Stony Brook salt marsh restoration project and quarterly reports; various planning documents for additional projects
- Environmental results: Over 24 acres of salt marsh and anadromous fish run habitat restored
- Role: Primary

Objective A2: Reduce and prevent stormwater pollution

Massachusetts Bays Program Research and Planning Grants: see Objective A1, p. 29, above

South River Bacteria Source Tracking: During FY11, MBP won a grant from DEP to conduct a bacterial source tracking study of the South River (in the South Shore Region). The South Shore RSP coordinated a team of volunteers, including students from the Cohasset Center for Student Coastal Research, to sample water quality at stormwater outfalls and stream crossings throughout the system. Based on the sampling, sources and hot spots have been prioritized, and MBP will be seeking funds for the design and installation of stormwater BMPs at several locations during FY12.

- Lead: South Shore RSP
- 320 Budget: \$0 MBP Cash
- Project deliverable(s): Prioritized list of bacteria sources
- Environmental results: Forthcoming with the installation of stormwater BMPs
- Role: Primary

Greenscapes: As outlined above, MBP and its RSPs had continued success with the Greenscapes Program in FY2011. Over 20 communities participated in three MBP regions, and most of these used Greenscapes to fulfill the requirements of NPDES Phase II outreach commitments.

- Lead: North Shore, Salem Sound, and South Shore RSPs
- 320 Budget: \$0 MBP Cash
- Project deliverable(s): Greenscapes newsletter and other publications (see <http://www.greenscapes.org/>)
- Environmental results: Though results have not been quantified, many nurseries and homeowners have adopted Greenscapes practices resulting in reduced chemical use and stormwater runoff
- Role: Primary

Salem Sound Clean Beaches and Streams Program: As part of this ongoing program, the Salem Sound RSP trained and coordinated volunteers to sample 30 stormwater outfalls throughout the watershed twice weekly during the FY11 field season. The program has identified numerous bacterial hotspots, informed the public about the risk of swimming and wading in contaminated waters, and resulted in the initiation of important stormwater remediation projects.

- Lead: Salem Sound RSP
- 320 Budget \$0 MBP cash
- Project deliverable(s): Sampling data and reports for 30 stormwater outfalls
- Environmental results: improved understanding of the locations of bacterial hotspots in Salem Sound
- Role: Primary

Objective A3: Protect and enhance shellfish resources

Cape Cod Water Resources Restoration Project: see Objective A1, p. 31, above

Mill River Benthic Survey: The Salem Sound RSP conducted the third and final year of benthic/shellfish surveys of the Mill River, Gloucester in order to determine whether restored tidal flows have created more suitable habitat for commercially valuable shellfish. The final report is in preparation, and will be completed by the end of FY2011.

- Lead: Salem Sound RSP
- 320 Budget: \$0 MBP Cash
- Project deliverable(s): Final report in preparation
- Environmental results: improved habitat quality (documented) of the restored Mill River system
- Role: Primary

South River Clam Flat Restoration: As highlighted above, many years of work on the part of MBP and its south shore regional host, the North and South Rivers Watershed Association, culminated in the re-opening of 312 acres of clam flats in the South River after being closed for over 20 years. No single action or organization can be credited for this success. However, projects such as the bacterial source tracking effort highlighted above, as well as years of septic system and stormwater cleanup efforts have contributed to this major milestone.

- Lead: South Shore RSP
- 320 Budget: \$0 MBP Cash
- Project Deliverable: Notification of clam flat opening
- Environmental Result: 312 acres of clam flats opened
- Role: Significant

Objective A6: Manage Marine Invasive Species

Marine Invasive Species Rapid Assessment Survey: Over the past decade, MBP has played a lead role throughout New England in the monitoring and management of marine invasive species. During the summer of 2010, MBP again supported a rapid assessment survey for marine invasive species. The project organized a team of taxonomic experts to survey floating docks and piers and adjacent wetland habitats beginning in Casco Bay and continuing south through Massachusetts Bay to Narragansett Bay. The survey resulted in the discovery of a new shrimp (*Palaemon elegans*) in Salem Sound and documented the northward migration of several additional species.

- Lead: MBP Director, CZM
- 320 Budget: \$7,000 MBP Cash
- Project deliverable(s): MBP support provided funding for the completion of the 2007 survey report as well as the 2011 report
- Environmental results: Increased understanding of the distribution of marine invasive species in Massachusetts Bay. New species of shrimp (*Palaemon elegans*) detected in

- Salem Sound
- Role Primary

Support Marine Invasive Species Monitoring and Information Collaborative: MBP continued to support the Marine Invader Monitoring and information Collaborative (MIMIC) by organizing volunteers to monitor for marine invasive species in the Upper North Shore, Salem Sound, and South Shore Regions. RSPs coordinated monitoring at 20 sites on the Upper North Shore, Salem Sound, and South Shore. In addition, the Cape Cod RSP submitted a grant application to the Massachusetts Environmental Trust with the hopes of establishing a marine invasive species monitoring network there.

- Lead: Upper North Shore, Salem Sound, and South Shore RSPs
- 320 Budget: \$0 MBP Cash
- Project deliverable(s): Marine Invasive Species data entered into the on-line MIMIC database
- Environmental results: increased understating of the distribution of marine invasive species

Objective A7: *Monitor marine waters*

National Coastal Assessment. MBP continued to be a strong partner of the EPA National Coastal Assessment program in 2011 by providing initial assistance with study design and coordinating logistics of the program. NCA funding was ultimately moved to the University of Massachusetts for the full execution of sampling.

- Lead: MBP Director
- 320 Budget: \$0 MBP Cash
- Project deliverable(s): 2010 NCA report forthcoming
- Environmental results: improved understanding of the condition of the coastal
- Role: Support

State of Salem Sound Symposium: See Objective A1, p. 31, above

Objective A8: *Adapt for projected impacts of climate change*

Climate Ready Estuaries: The EPA/MBP Climate Ready Estuaries Partnership culminated in a two-day Salt Marsh Vulnerability Expert Elicitation Workshop on April 27 and 28, 2010 (following the submission of the FY11 Grant request). The final report is forthcoming, and it will further refine MBPs role in climate change adaptation planning as it relates to coastal wetland and other natural environments. Efforts to partner with CZM's Storm Smart Coast Program on more comprehensive adaptation planning initiatives are outlined above.

- Lead: MBP Director, EPA
- 320 Budget: \$0 MBP Cash
- Project deliverable(s): Draft Expert Elicitation Workshop Report
- Environmental results: to be achieved upon implementation of recommendations
- Role: Primary

Adopt a Beach: The Salem Sound adopt a beach program trained volunteers to collect long-term data documenting the impacts of sea level rise to area beaches as well as coastal infrastructure. Volunteers conducted beach profiling exercises and coastal surveys to document accretion and erosion rates and other indicators of change related to climate stressors in seven Salem Sound communities.

- Lead: Salem Sound RSP

- 320 Budget: \$0 MBP Cash
- Project deliverable(s): Data reports and analysis of erosion/accretion trends along Salem Sound Beaches
- Environmental results: Increased understanding of vulnerability to climate change and Sea Level Rise
- Role: Primary

VI. Impacts of External Factors

We are very proud of the accomplishments of MBP during FY11. As highlighted above the program was able to launch new program areas, such as the Research and Planning Grants. We added new members and organizations to our management committee, including the Nature Conservancy and the National Wildlife Refuge System, and we completed our 2010 State of the Bays Report. We also saw the completion of major habitat restoration projects, such as Stony Brook, and we saw hundreds of acres of shellfish beds opened within the Massachusetts Bays planning area.

Though we have achieved much during the course of the past year, MBP has the potential to do much more. For most of FY11, MBP was understaffed, carrying vacancies for both the staff scientist position and the outreach coordinator position. The economic downturn and other political factors resulted in very long delays in filling these positions (6 months and 18 months respectively). However, with the help of the Regional Service Provides and many partners, MBP was able to make the strides detailed above. MBP is now fully staffed, and will take the opportunity to continue to push the program forward, beginning with the update of the MBP's CCMP.

VII. CWA Funds Used for Travel and National Meeting Attendance

Date of Travel	Person Travelling	Location	Purpose of Travel	Amount
7/6/2010 - 7/8/2010	Executive Director	Washington DC	EPA Climate Ready Estuaries Workshop	\$1,004.50
7/27/2010	Executive Director	Provincetown, MA	Meet at Wellfleet Audubon regarding shellfish restoration; onward to Provincetown for meeting with harbor master regarding eelgrass restoration	\$96.20
9/15/2010	Executive Director	Provincetown, MA	Eelgrass/Conservation Mooring Field Work	\$91.20
10/26/2010-	Executive Director	Wareham, MA	EPA Wetland Review Meeting: field trip	\$48.00
10/27/2010	Executive Director	Woods Hole, MA	EPA Wetland Review Meeting	\$11.94
11/8/2010-11/10/2009	Executive Director	Punta Gorda, FL	Association of National Estuary Programs Meeting (hotel, airfare, bus)	\$1,174.48
11/4/2010	Executive Director	Kingston, MA	MBP Grant Program Info Session	\$56.00
11/5/2010	Executive Director	Barnstable, MA	MBP Grant Program Info Session	\$28.80
2/24/2011	Executive Director	Boston, MA	Boston Harbor Habitat Conference, EPA Region 1	\$34.00

3/16/2011	Executive Director	New Bedford, MA	Meeting with Division of Marine Fisheries	\$58.00
3/17/2011	Executive Director	Barnstable, MA	Meeting with Association to Preserve Cape Cod and North and South Rivers Watershed Associations	\$56.00
4/6/2011	Executive Director	Boston, MA	MBP Management Committee Meeting 100 Cambridge St	\$66.65
Total				\$2,725.77